

Chapter 2

Planning Approach

Loudoun County is an exceptional place. Balancing the variety of interests while charting a new course for the County is challenging. However, after a decade of record-breaking growth the community has decided it is time to set new priorities and policies to guide its future development.

The *Revised General Plan* carries forward the central concept that development should be systematic, in compact communities, and in the right location, in order to function well and enable the County to provide adequate, and cost-efficient, public services. The Plan will enable the Board of Supervisors to exercise its public responsibility to protect the best long-term interests of Loudoun County and its residents.

This Plan establishes the environmental, natural, and heritage features of the County's Green Infrastructure as a single, unifying element for the County as a whole. Strategies to implement this concept include conservation design development standards and strengthened open-space policies. The *Revised General Plan* also establishes a new Transition Policy Area that will serve as a separation between the Suburban and Rural Policy Areas and that has a transition of uses, incorporating elements of both suburban and rural design to create truly unique country-side developments.

Demographic and Economic Trends and Characteristics

To develop a meaningful plan, it is important to understand the growth pressures that have occurred in the past ten years and that are expected to occur in the County over the Plan's planning horizon of the next twenty years. Trends, projections, and assumptions provide a numerical benchmark to help determine if the Plan is realistic and reasonable. The County, with public input, makes annual estimates of the basic demographic and economic factors affecting development and growth. These estimates are published in the "Annual Growth Summary" document and are used as input for the County's fiscal impact model. Important trends, projections, and planning assumptions are summarized below.

A. Population

Loudoun County's population was relatively unchanged between 1790, the first year that the U.S. Census was taken, and 1960. Throughout the 170-year period, it remained in the range of 20,000 to 25,000 persons, reflecting the stability of a predominantly rural county at the far western reaches of the Washington region. Transportation facilities, including Leesburg Pike (Route 7), Little River Turnpike (U.S. 50) and the Washington & Old Dominion (W&OD) Railroad, provided early links to the region. Farmers and merchants used the routes to transport their products to the broader market, and District of Columbia residents used them to retreat to the countryside.

This picture began changing in 1960, with population growth in neighboring Fairfax County, construction of the Broad Run Interceptor that would provide sewer service for suburban development in the eastern part of Loudoun County, and the construction of Washington Dulles International Airport in Fairfax and Loudoun counties. When the airport was built in the mid-1960s on a 10,000-acre site mostly inside Loudoun, much of the land around it was rezoned for industrial uses to accommodate businesses related to

the airport. This marked the beginning of a dramatic shift in how rural land outside of Loudoun's Towns would be developed. At the time, the Towns were the centers of population and commerce in the County, and land beyond their corporate limits was planned for rural residential or agricultural uses. The airport set a new course for the County, one whose scope recently has come into focus as telecommunication giants such as America Online and WorldCom have invested in this community.

During the 1960s, and in each decade that followed, the County's population has risen by at least 50 percent. This population shift from 24,549 in 1960 and to 86,129 in 1990 amounted to 250 percent. By 2000, Loudoun's population had nearly doubled again to an estimated 169,599.

Most of the County's recent growth is due to migration into the County, particularly into the Suburban Policy Area, which experienced a 128 percent increase in population from 1990 to 2000. In 2000, eastern Loudoun's Suburban Policy Area had an estimated population of more than 106,550 persons and the Rural Policy Area had an estimated population of 22,160 persons. The seven incorporated Towns had a combined population of 34,540 persons and their Joint Land Management Areas (JLMAs) had more than 5,000 persons. Nearly 1,250 persons lived in the Transition Policy Area.

B. Housing

Over the last fifty years, the number of housing units in Loudoun County has increased by almost 1,000 percent. In 1950, there were 5,988 units in the County. In 2000, there were over 60,000 units. The greatest increase has been since 1990, when nearly half of the County's housing stock was built. During the 1990s, one in four building permits issued in Northern Virginia was issued in Loudoun County. The number issued here (39,270 permits) was surpassed only in Fairfax County.

During this time, the County's housing stock also became more diverse. Today, single-family detached housing remains the dominant type, though its proportionate share of the housing stock is declining. Single-family detached houses represented 65 percent of the overall housing inventory in 1990 and declined to 56 percent in 2000. Single-family attached units in 2000 represent 25 percent of the housing stock and multi-family units reflect 19 percent. Townhouses and multi-family units have been built in areas zoned for them in the Suburban Policy Area and in the Towns and their JLMAs.

Three-fourths of the residential building permits issued by the County during the 1990s were for new homes in the Suburban Policy Area. The prevailing development pattern in the Rural Policy Area has been single-family detached homes in 3-acre lot subdivisions. However, some innovative approaches to rural residential development, including the rural hamlet and village concepts, were implemented in the Rural Policy Area following the adoption of the 1991 *General Plan*.

The number of persons per household in Loudoun declined from 3.94 in 1950 to 2.80 in 1990, but recent data suggest a shift toward larger households. In 2000, the overall household size was 2.82, with single-family detached homes averaging 3.1 persons per household, townhouses 2.8 persons, and multi-family units 2.0 persons.

C. Employment

The number of jobs more than doubled in the past ten years, increasing from 40,000 in 1990 to more than 87,000 in 2000. This almost 120-percent rise in at-place employment was due to the addition of more than 2,000 new companies, including several major employers, which sparked commercial construction activity at a scale unprecedented in Loudoun County. Non-residential space tripled during the decade to nearly 30 million square feet. Economic development affected every land use category, with a significant move toward construction of office space and technology centers.

Much of the recent economic development activity in the County can be attributed to its strategic position within the Washington D.C. Metropolitan Region, one of the nation's most prosperous metropolitan areas, and its proximity to a primary driver of new investment in the region, Washington Dulles International Airport. As a result of Loudoun's unique combination of assets, at-place employment is expected to continue to grow over the next twenty years reaching almost 200,000 jobs by 2020. Many of the workers filling those jobs want homes near their jobs and need additional retail and other services, so the market demand for both residential and non-residential development is expected to continue.

As new company growth and expansion take place in Loudoun, it is likely that the types of industries will parallel those of Fairfax County's recent past as available sites become increasingly less available there. There will likely be continued attraction of high technology businesses to the County because of the skilled labor pool, complementary types of high technology businesses, symbiotic business interrelationships, Washington Dulles International Airport and the availability of necessary support services.

New households and new businesses have been attracted to Loudoun for very similar reasons. The following factors, in no particular order of priority, are considered as critical to determining the competitiveness of a residential location: access to employment concentrations, highway accessibility, proximity to local-serving and regional retail concentration, quality of schools, variety of housing options, proximity to recreation and cultural opportunities, relative proximity to an airport, natural amenities and availability of developable land. As has been the case in more developed jurisdictions like Fairfax and Montgomery counties, over time the percentage of those County residents who also work in the County is likely to increase to the 55 to 60 percent level.

D. County Resident Survey

Every two years the County conducts a telephone survey of 1,000 residents to find out how they feel about living in Loudoun County. The survey also provides a demographic snapshot of who lives here and why. In the 1999 Survey of Loudoun County Residents, more than one in four participants had lived in the County for three years or less. Just over half had moved to Loudoun either from Fairfax County or from other parts of the Washington D.C. Metropolitan Region. Most of the new residents who moved into Loudoun cited proximity to work, housing affordability, and Loudoun's rural character as major factors in their location decisions.

The average age of 1999 survey participants was 30.9 years, reflecting the large number of young adults who have moved to the County to work in the growing technology sector. More than half of those surveyed had annual household incomes of at least \$75,000; almost one in three (29 percent) had incomes that exceeded \$100,000. Two-thirds said they were residing in single-family, detached homes, and most respondents (87 percent) owned their residences.

Forty-four percent said they had school-age children, with most of the students attending public schools (87 percent), 12 percent attending private schools, and 4 percent being schooled at home. These numbers reflect the rapid growth in the County's school-age population and the increasing number of students attending Loudoun County Public Schools. Public school enrollment increased from 14,632 in 1990 to more than 31,800 in 2000.

E. Loudoun's Place in the Region

All but one of the 24 jurisdictions that comprise the Washington D.C.-MD-VA-WV Primary Metropolitan Statistical Area (PMSA) increased in population from 1990 to 2000. Within the PMSA, the District of Columbia lost 34,841 residents (16 percent), while Northern Virginia gained 435,380 residents (25 percent), Suburban Maryland gained 276,213 residents (15 percent), and the West Virginia Panhandle gained 22,916 residents (24 percent). Though Loudoun's growth rate was the highest, two jurisdictions

experienced a larger population increase: Fairfax County, Virginia gained 151,165 residents and Montgomery County, Maryland increased by 116,314 persons.

In Northern Virginia, Loudoun's share of the regional population increased from 5 percent in 1990 to 8 percent in 2000. Fairfax County's share of regional population declined during that period, from 47 percent to 45 percent. Significant increases were also experienced in Prince William, Stafford, and Spotsylvania Counties.

Other demographic changes that occurred between 1990 and 2000 include Loudoun's median age, which increased from 31.5 years to 33.6 years, and Loudoun's average household income, which grew from \$72,433 to \$97,987. In both cases, these increases were at lower rates than the Northern Virginia and Washington Metropolitan Areas.

From 1990 to 2000, Loudoun's share of employment in Northern Virginia increased from 4.6 percent to 8.5 percent - an increase of more than 85 percent. In 2000, Fairfax County accounted for more than 50 percent of all jobs in Northern Virginia, Arlington County accounted for more than 15 percent, and Alexandria accounted for nearly 9 percent.

In general, the westward growth of the Metropolitan area in terms of population and employment has significantly affected Loudoun County over the past several years. While some of the growth is attributable to the expansion of Washington Dulles International Airport, rapid growth in Fairfax County and transportation improvements, including the construction of the Dulles Greenway, and improvements to Route 7, Route 28, and Route 50, all have substantially increased the County's accessibility and competitiveness. The privately funded toll road opened in 1995 as a 14-mile extension of the Dulles Toll Road and has positioned western Loudoun within commuting distance of high-paying jobs in the Region's core. Also benefiting from the road improvements are residents of other counties who now commute to Loudoun's major employers.

The growth and near build-out of the Reston area and the Toll Road corridor in Fairfax County have facilitated rapid growth in the Route 28 corridor, which extends from Route 7, south to Centreville in Fairfax County. The radial expansion of the Washington D.C. Metropolitan Region now clearly includes eastern Loudoun's Suburban Policy Area. As a result, the County has become an active participant in regional policy deliberations and decision-making. This role will be increasingly important, particularly with respect to housing and transportation initiatives.

Planning Assumptions and Forecasts

The County has been concerned about the rate of population increase over the last five years because of its fiscal impact and the ability of the County to provide schools and essential public services in a timely fashion. The issue of housing provision is considered from a regional perspective as it relates to the segment of the housing market that Loudoun County is accommodating. Housing demand is driven primarily by three factors: regional employment growth, the number of households generated by each new job and the percentage of household growth generated by each employment concentration that Loudoun County would most likely capture (i.e., the percentage of those working in a particular area who would most likely choose to live in Loudoun). The majority of demand for housing in Loudoun will emanate from the employment growth within Northern Virginia. Over the ten-year (1990-2000) period, Northern Virginia captured 74 percent of all net, new jobs in the Washington D.C. Metropolitan Region and Loudoun captured 15 percent of the total. Loudoun and Fairfax Counties accounted for more than one-half of all net new jobs in the region over this ten-year period.

Using an employment driven model, long term household demand in Loudoun has been determined under four scenarios: conservative, moderate, aggressive, and highly aggressive. The highly aggressive scenario reflects a situation in which a significant share of regional growth is occurring in western Fairfax County and Loudoun County, while the conservative scenario anticipates a wider distribution of regional growth. The moderate, aggressive and highly aggressive scenarios all project significantly more employment growth in Loudoun County than Metropolitan Washington Council of Governments (COG) forecasts. All of the scenarios project significantly greater growth in western Fairfax County than COG has forecasted.

Given the expectations about the likelihood of continued employment growth in Loudoun and western Fairfax over the next twenty years, and the continued desirability of Loudoun County as a residential location for those working in these areas, relative to other locations with available supply, the aggressive scenario seems most likely. In this scenario 95,800 new households (4,720 annually) will demand housing in Loudoun. Factors such as the availability of desirable sites, shifts in the industry mix of employment growth, major transportation initiatives and changing trends in regional growth might affect the accuracy of this prediction.

As of March 2001, there was a backlog of 37,030 approved but unbuilt dwelling units in the “pipeline.” The County cannot control the pace at which these units will be absorbed, but does have the ability to control the supply of land for housing and the density of residential development. Therefore, the *Revised General Plan* makes substantial changes from the 1991 *General Plan* regarding the potential total build out projections as shown in the following table:

Policy Area	1991 General Plan	Revised General Plan
Pipeline	37,030	37,030
Suburban	33,906	30,850
Transition	23,401	11,559
Rural	58,444	12,542
Towns/JLMAs	33,970	11,613
Total	186,751	103,593

Under the *Revised General Plan*, there would be a 45 percent reduction in the maximum number of housing units that could be built.

General Plan Strategy

The *Revised General Plan* is the policy foundation for creating a county that in the future does not lose touch with its past. The planning strategy presented in this document is a product of the long-term vision of the Board of Supervisors embodied in the Smart Growth and Revitalization Principles, the guidance of the Planning Commission, and invaluable input from the community. The key elements of that strategy can be summarized as follows.

1. Green Infrastructure

An overarching change in this Plan is the integration of Loudoun’s natural, environmental, cultural and heritage resources into a unified Green Infrastructure strategy. The Green Infrastructure will shape land uses throughout the County in all policy areas. It will be a structuring element of development, with its features becoming a part of every new project through the use of conservation design as the preferred project planning technique. The County is committed to the preservation and enhancement of its Green Infrastructure assets for their economic value and contribution to the quality of life of present and

future residents.

2. Fiscal Planning and Management

The strategy provides for the close integration of land use planning, fiscal management, County service plans and capital facilities development required by a rapidly expanding population, and at an affordable cost to the County's taxpayers. This integrated strategic management approach not only addresses the short-term and long-term needs of Loudoun's citizens, but also operates within a regional context to maximize opportunities and to resolve multi-jurisdictional issues.

3. Economic Development and Housing

The *Revised General Plan* integrates economic development planning with land use planning in order to sustain Loudoun's competitive advantage in a global market place and in recognition that an efficient, strong, diverse and resilient economy is essential to the achievement of Loudoun's overall development objectives. The creation of sustainable housing to assure that all existing and future County residents are served by a range of housing opportunities is inextricably linked to these economic development goals.

4. Infrastructure

The community's infrastructure systems including water and wastewater, solid waste management, roads, energy and telecommunications must complement the land use strategy. Because the County does not completely control the provision of these vital infrastructure components, careful coordination is necessary. The *Revised Countywide Transportation Plan*, the Loudoun County Sewer and Water Master Plan and the Loudoun County Solid Waste Management Plan are documents which serve to reinforce and implement this strategy.

5. Geographic Planning Policy Areas (Refer to Policy Areas Map, pg. 2-7.)

The County's ultimate development pattern will be based on the long-term commitment to maintaining distinct Suburban, Transition, Rural, and Town Policy Areas. (Refer to Existing Land Use Map, pg. 2-9.) Each policy area has a preferred development pattern that is distinct and that will determine the location of public infrastructure and facilities over the next twenty years. In all policy areas the Plan seeks compact residential development through clustering with ample open space, and the protection of Green Infrastructure assets. Further, it is intended that the County Zoning Map reflect the land uses called for in the Plan. (See Planned Land Use Map, pg. 7-23)

The strategy for residential densities is to start with higher densities around transit nodes and urban centers in the Suburban Policy Area, moving to lower clustered suburban densities in the Transition Policy Area and then to still lower rural by right densities in the Rural Policy Area. This approach provides an internally consistent density pattern that provides an appropriate location for all of the County's desired housing types, lot sizes, neighborhoods, and communities.

The Plan reaffirms an Urban Growth Boundary (UGB) beyond which central sewer and water is not allowed. Beginning in the north, the UGB follows the Suburban Policy Area boundary to the point where it meets the Transition Policy Area. The UGB then follows the western edge of the Transition Policy Area to meet the Prince William County line in the south. There is also a UGB that applies to the Towns. Where there are Town Joint Land Management Areas (JLMAs) the boundaries of the JLMA serve as the UGB.

a. Suburban Policy Area

Eastern Loudoun is the Suburban Policy Area. The Plan identifies four large communities: Ashburn, Dulles, Potomac, and Sterling. Each will be the subject of individual Community Plans to ensure that they are well designed and serviced and that they provide diverse and stimulating social, cultural, recreational and spiritual environments for their residents.

Over the next twenty years, it is anticipated that the Suburban Policy Area will continue to build out in a suburban pattern as a low-density fringe to the Washington D.C. Metropolitan Region. The area will be characterized by a pattern of residential neighborhoods, town centers, and mixed-use business centers linked by a substantial network of roads, linear parks, and open spaces. As existing neighborhoods mature, revitalization plans will be developed to protect and ensure the continuing vitality of these established communities.

As express bus (expected in 2004) and eventually bus rapid transit (expected in 2010) and rail become available, higher-density land uses along major thoroughfares will become appropriate. Transit nodes and urban centers including a mix of uses and transportation modes will develop. Very compact in form, they will be designed for full pedestrian access and served by mass transit. The first nodes will appear along the Dulles Greenway corridor, where right-of-way exists for a rail transit corridor, and in in-fill areas within existing developments.

b. Rural Policy Area

The rural heritage and economy that has given Loudoun its truly unique character for more than two centuries must be preserved and enhanced. Although some development may occur in clusters, overall residential use in the policy area will be limited in order to retain the economic, ecological, and scenic value of the countryside. Conservation and cluster design of residential areas, along with the permanent protection of undeveloped land, will protect the area's rural character and significantly enhance the rural economy. Public investment is directed to the provision of incentives to landowners and businesses that manage their land according to the Plan.

The Rural Policy Area is divided into two tiers, the northern tier and southern tier, which recommend different base residential densities in response to the dominant rural land use and development patterns of these distinct geographic areas. The northern tier (defined generally as north of Goose Creek and North Fork of Goose Creek to the County boarder with Montgomery, Frederick and Washington Counties, Maryland; Jefferson County, West Virginia; and Clarke County Virginia) is characterized by a mix of smaller lots interspersed with larger parcels still in agricultural use. The southern tier (defined generally as south of Goose Creek and North Fork of Goose Creek to the County boarder with Clarke, Fauquier and Prince William Counties, Virginia) is characterized by an existing large lot pattern and is the center of Loudoun's equine industry. Appropriate zoning districts reflecting these historic lot patterns will be developed and mapped for the respective tiers. The Rural Policy Area is planned for rural economy uses and limited residential development. Among residential uses, clustered developments are the preferred development pattern in the Rural Policy Area. Clustered developments allow landowners to group residential lots in a traditional community pattern so that a substantial amount of the remaining land is available for rural economy uses, traditional agriculture and/or open space.

As a matter of policy, the Plan calls for the preservation of unpaved rural roads in their present condition. These roads are an integral part of rural character and maintaining this character is of paramount importance. The major expenditures necessary to upgrade rural roads and the limited

funds available further justify the significant reduction in rural densities.

c. Transition Policy Area

The *Revised General Plan* clarifies the distinction between the Suburban Policy Area and the Rural Policy Area. One of the most significant new tools for achieving that distinction is the creation of the Transition Policy Area that lies, for the most part, directly between the two. By providing a transition in terms of development pattern, the Transition Policy Area offers the opportunity to incorporate visual and spatial characteristics of both rural and suburban development into new projects.

The Transition Policy Area will have a combination of villages and clustered residential neighborhoods as well as larger lot development that provides for surrounding eased open space and the full implementation of Green Infrastructure policies. Residential development at one dwelling unit per 3 acres, that is sensitive to the environment and the Bull Run, will be provided in the Lower Bull Run subarea. In this regard, density transfer will also be encouraged from the Lower Bull Run subarea to the Lower Foley subarea. The option to rezone to Rural Villages at one dwelling unit per 3 acres will also be provided. In the Middle Goose and Lower Sycolin subareas, residential neighborhoods will be clustered at one dwelling unit per 10 acres. The option to rezone to Rural Villages at one dwelling unit per 3 acres will be provided. Clustered residential neighborhoods at densities up to one dwelling unit per 3 acres or one acre in the Lower Foley, Upper Broad Run and Upper Foley subareas will be provided. Opportunities to rezone for Countryside Villages up to two dwelling units per acre in the Lower Foley subarea will be possible. And as a potential receiving area for density transfer from the Lower Bull Run subarea, the Countryside Villages in Lower Foley could be considered for up to three dwelling units per acre.

Central water and sewer service is planned for all the subareas of the Transition Policy Area.

Either central or communal water and wastewater services are the preferred utility service methods in the Transition Policy Area. Central water service is required for properties within the Landfill Water Service Area District in the Lower Sycolin subarea. In all other areas of the Transition Policy Area, LCSA will, at the time of application for new development, evaluate the proposed system and various alternatives to verify that the proposed utility system best addresses the constraints and environmental characteristics of the site, and will consult with the County on such issues as soil type, underlying bedrock lithologies, groundwater availability, surface water drainage patterns, proximity to existing groundwater supply wells and other water sources. For small-scale and low-density developments, where the extension of central utilities or construction of communal systems is not economically feasible, the County will consider permitting development on individual well and septic systems.

A hard utility edge (marking the limits of central water and sewer) is maintained by the western boundary of the Transition Policy Area to establish an urban growth boundary. In addition, the area included as part of the Woodland Rural Village (ZMAP 1997-0001) may be served by central utilities from the adjacent Transition Policy Area based on the following:

- i. This development is zoned for a Rural Village under the PD-RV district, and the PD-RV zoning was continued due to vested rights considerations as part of the Countywide remapping.
- ii. Under the PD-RV zoning classification, the Village core is to be served by public utilities. In this case, communal systems to be owned and operated by LCSA have been

engineered to serve the Rural Village.

- iii. This Rural Village is adjacent to both the Middle Goose and Upper Broad Run subareas.
 - iv. A small portion of this Rural Village rezoning is within the Transition Policy Area.
 - v. Most of the area encompassed within this Rural Village zoning, including the Village Core, is underlain by a diabase aquifer.
- d. The Towns - Joint Land Management Areas (JLMAs)

Healthy and vibrant towns and villages in Loudoun are key to the success of the Plan's strategy. The County has seven incorporated Towns that govern land planning and zoning within their boundaries. The Plan establishes a policy area specifically for land in JLMAs adjacent to Leesburg, Purcellville, Round Hill, and Hamilton. The densities in the JLMAs include one dwelling unit per 3 acres one dwelling unit per acre and two dwelling units per acre. Denser development with a mix of uses is anticipated in the designated growth areas around the Towns, where town utilities will be available to serve development that is compatible in design with the existing Towns. The County recognizes the critical importance of the Towns to the overall development of the County, and policies in this revised Plan encourage the County's close cooperation with and support to the Towns in order to achieve mutually beneficial goals.

Housing

The County's primary housing objective is to assure that existing and future County residents and the workforce are served by a range of housing opportunities. An adequate supply of varied types of housing, both rental and for-sale, in locations throughout the County is a fundamental ingredient of an enduring community. The creation of sustainable housing-its design, density, location, and performance-requires that the pattern of residential development benefit the user now and over time. To accomplish this objective, a diversity of housing types in a broad range of prices should be provided. Housing opportunities should be available in all areas of the County. Housing for special needs populations incorporating a programmatic approach also should be furnished.

The supply of single-family detached, attached and multi-family housing and their pricing is largely a function of market dynamics. The market determines the type of housing to be constructed, based upon demands for specific housing types and the potential return on investment for the developer. Loudoun's experience is that the market alone cannot meet all areas of housing need given current and projected job growth for the regional economy. Unmet housing needs occur across a broad segment of the County's income spectrum. The County defines unmet housing needs as the lack of housing options for households that are unable to rent or purchase due to insufficient incomes to meet current market prices. Housing diversity in type and price to address unmet needs will enhance Loudoun's economic vitality and the health of the community now and over time.

As total demand for housing in Loudoun has increased over the past fifteen years, single-family attached and multi-family units have gained a greater share of the for-sale market, while single-family detached homes and lots have accounted for a decreasing share. In 1990, single-family detached units represented 65% of the County's housing stock, whereas single-family attached units constituted 19% and multi-family units constituted 14%. By 2005, single-family detached units represented 54% of all homes; single-family attached units 27%, and multi-family units, 19%. By 2005, single-family detached units and lots accounted for only 49% of sales, compared to 58% of sales in 1990. Although the types of housing offered in the market are diversifying, housing costs are high and the shortage of affordable housing for residents and the workforce is growing.

The County can influence housing options and affordability by encouraging or requiring a clustered pattern of development and mixed-use communities with a diversity of housing types. To achieve this, the County should allow higher residential densities that are close to employment opportunities, schools, community centers, transit routes and other amenities where adequate water, sewer, roads, schools, open space, and recreation are, or will be in place. In and of themselves, increased densities are not the only answer to influencing the market. Flexibility in lot sizes and setback requirements, and relaxation of use restrictions are also necessary to achieve the desired product mix. The County can permit accessory and second-story apartments in existing villages and rural clusters and provide for a variety of unit types to be developed in designated Joint Land Management Areas (JLMAs) around the towns that have them. The County can form public-private partnerships to implement programs, providing incentives to influence the market.

A. Housing Affordability

Housing affordability has long been an issue in the Washington, D.C. metropolitan region. Affordability becomes a problem when the cost of housing exceeds an acceptable percentage of a household's disposable income. Households that are determined to reside in the metropolitan area can either pay a disproportionate amount of their income to secure housing, or pay less for lower quality or less adequate housing. In developing Loudoun County's vision for its residents, the Board of Supervisors has recognized affordable housing as an economic, transportation, and quality-of-life issue. While the County is providing a significant share of the region's housing, prices and rents are at a level that is too costly for many of Loudoun's workforce. Workers filling jobs in Loudoun often live in other jurisdictions and generate traffic on local roads as they commute to work increasing air pollution and gas consumption. Some housing units contain multiple families or additional occupants, resulting in overcrowded conditions which adversely affect neighborhoods and quality of life. The lack of affordably priced housing also has an impact on the continued ability to attract and retain a diversified employment base.

B. Unmet Housing Needs

The County's affordable housing policies focus on the unmet housing needs of all Loudoun's citizens and workers. The market is not meeting all areas of need given the County's vibrant economy and location in the region. The County's housing strategy gives guidance to the development of a variety of programs that address Loudoun-specific needs as identified through systematic audit, evaluation, and study. The County has identified that, within the broad spectrum of housing need, different levels of effort and varying approaches must be applied in order to effectively address the problem of housing affordability.

Providing housing for special needs populations to include low-income residents (less than 30% AMI), elderly residents requiring congregate care, disabled residents, and the homeless often requires heavy subsidies, which have historically been provided by the federal and state governments. Given the reduction of federal and state assistance, the County is committed to identifying resources to replace that assistance as well as encouraging the formation of public and private partnerships to support the development of housing for people who are elderly, disabled, or living on very low incomes.

To address the unmet housing needs of Loudoun's workforce earning 30% to 100% AMI, a full range of tools to include loans, regulations, and other incentives should be considered. One important program is the Affordable Dwelling Unit (ADU) program. This program, adopted in 1993 as part of the Zoning Ordinance is based on state enabling legislation, and aimed at fulfilling the housing needs of County residents with incomes from 30% to 70% AMI.

The ADU rental units are designed to serve residents earning 30% to 50% AMI and priced at 30% of income (exclusive of utilities). ADU for-sale units are designed to serve residents with incomes of 50% to 70% AMI. For-sale units should be available at 3 times that income. As important as this program is to providing affordable housing to County residents, it has not been able to keep pace with the growing

demand. In addition, there are deficiencies in the implementation of the ordinance that lessens its effectiveness to secure affordable housing for households in the lower range of the ADU program. This program alone cannot meet the need.

The County may establish a dedicated stream of revenue to fund the housing trust fund which would leverage federal, state, and other funding sources for the production of new units, to provide down payments for first-time homebuyers and to purchase land for affordable housing development. The affordability issue also includes developing strategies to preserve the existing supply of owner-occupied housing and affordable rental units. As such, the Plan recommends other programmatic initiatives aimed at revitalization, renovation, and restoration of the existing housing stock, provisions to allow manufactured housing as an option, and the commitment of County government to play a greater role in addressing unmet housing needs.

C. Adult/Retirement Housing

The County recognizes the increasing need for housing for seniors as the population continues to age. Diverse interests, needs and abilities characterize this segment of the population, broadly defined as those persons who are 55 years of age or older. To cater to such diverse interests and offer seniors a variety of housing choices, the County promotes a wide variety of housing options including active adult age restricted retirement communities, continuing care retirement communities, assisted living facilities and skilled nursing facilities. The County encourages the development of communities that offer a continuum of care and/or otherwise allow seniors the option of aging-in-place. At the same time, the County will consider development proposals that cater to the interests of segments of the senior housing market who desire to live in active-adult age-restricted communities. The County encourages the development of retirement communities as components of other residential or mixed-use projects to offer seniors the advantages derived from proximity and access to the services and amenities offered within larger master planned communities. Retirement housing projects should incorporate on-site services and amenities or ensure that residents have convenient access to needed services and amenities through a variety of transportation options.

The County recognizes that housing choices made by seniors vary and that retirement housing developments exhibit different characteristics in order to serve a wide range of needs. It is the intent of these policies to encourage and provide guidance and direction for all types of retirement housing opportunities. It is anticipated that these policies be applied to accommodate a wide diversity in housing stock and a range of incomes in the County's senior population.

Guiding Principles Policies

1. The County seeks to promote housing options for all people who live and/or work in Loudoun.
2. County policies and programs will focus on the unmet housing needs of households earning up to 100% of the Washington Metropolitan Area Median Income (AMI) that being the area of greatest need.
3. The County will regularly examine and estimate unmet housing needs, and housing programs will be evaluated for their effectiveness in addressing those needs.
4. Housing that is developed to fulfill unmet housing needs should generally be located near existing or planned employment opportunities, schools, communities, transit routes, and other amenities.
5. The County is committed to bring all existing affordable housing in need of indoor plumbing, operational septic and water systems, and major system repair (new roofs, heating and cooling systems) up to safe and livable conditions.

6. The County encourages a variety of housing types, sizes and innovative designs to be developed to assist in fulfilling unmet housing needs throughout the County.
7. The County will require a mix of housing options appropriately located in communities to support a balanced development program.
8. The County will encourage the development of housing for special needs populations (as defined in the Glossary) integrated within existing and planned residential communities, particularly in areas within walking distance of convenience shopping and employment opportunities, transit, and other amenities.
9. The County will promote the provision of an affordable range of housing types throughout the County.
10. The County will promote the formation of public and private partnerships and facilitate the utilization of state and federal housing programs to assist in fulfilling unmet housing needs.
11. The County supports the development of housing and of communities that apply universal design principles.
12. The County encourages development that utilizes energy efficient design and construction principles, promotes high performance and sustainable buildings, and minimizes construction waste and other negative environmental impacts.
13. The use of planned and/or zoned non-residential land to address unmet housing needs is not supported unless the proposed use provides a mix of residential, commercial and offices uses and addresses the full range of unmet housing needs.
14. In addition to the requirements of the ADU Ordinance, the County encourages each development proposal that includes a residential component to address unmet housing needs recognizing that the largest segment of unmet need is housing for incomes below 30% AMI.

Housing Supply Policies

1. The County will identify options for addressing unmet housing needs not covered by the ADU zoning ordinance and work toward an implementation plan.
2. The County will encourage preservation by adaptive re-use of existing unused, or underutilized structures throughout the County, for the development of affordable dwelling units, as defined in the Zoning Ordinance and in accordance with the policies in the Revised General Plan.

Cooperation Policies

1. The County will initiate a regional cooperative effort with neighboring jurisdictions to establish a dialogue and programs to address the provision of a healthy balance of jobs and housing in each jurisdiction.
2. The County will provide technical planning expertise and financial support to the Towns to assist them in establishing programs that provide affordable housing. Such programs might include a revitalization tax credit program, housing rehabilitation, the development of regulations that allow for a broad range of housing types and sizes and upper story residential uses over stores, etc.
3. The County will work in partnership with nonprofit, public and private entities committed to the provision of a wide range of housing opportunities by offering technical and financial assistance.

Funding Policies

1. Developers of residential and mixed-use projects are encouraged to include funding commitments and proffers to fulfill unmet housing needs in their development proposals.
2. The County may maintain a dedicated revenue stream to fund the housing trust fund to address unmet housing needs. The fund will be evaluated annually to determine its effectiveness and efficiency.

Programs and Incentives Policies

1. County will encourage the creation of programs, tools and incentives both publicly and privately developed that will fulfill unmet housing needs.
2. The County may provide incentives to stimulate the development of new housing projects when the applicant demonstrates the capacity to affect economic efficiencies in producing and sustaining affordable rents or sale prices over time.
3. The County may adopt or develop and implement an employer-assisted housing program to help meet workers' housing needs.
4. The County may develop and implement revitalization tax credit programs and/or loan programs for housing rehabilitation to conserve existing affordable housing.
5. The County may establish additional incentives, such as density bonuses; expedited application review; reductions or waiver of permit, development, and infrastructure fees or capital facilities contributions; tax credit programs; and zoning modifications to meet housing goals and objectives.
6. The County may maintain an inventory of County-owned real property. The Board of Supervisors may consider the use of inventoried property by nonprofit, public and private sector entities as an incentive for residential development to fulfill unmet housing needs when it is consistent with other Plan policies. In using County-owned real property, the development goal is to provide 1) special needs housing and/or 2) a mix of housing types and sizes suitable for a range of households having less than 70% of Area Median Income (AMI).
7. The County promotes the recognition of good design and innovation in affordable housing by the Design Cabinet, County programs, and other channels.

Legislation Policies

1. The County requires that for land development applications proposing development of 50 or more dwelling units with a density greater than one dwelling unit per acre, located in an approved sewer service area, a percentage of the total number of dwellings will be developed as affordable units and given an appropriate density increase.
2. The County will seek state enabling legislation to eliminate the exemption from the ADU Ordinance of buildings with elevators that are four stories or higher.
3. The County will strengthen ADU Program regulations to do as much as the state code allows to require the development of affordable housing that is interspersed within neighborhoods, communities and throughout the County as a part of new development.
4. Until such time as a Housing Authority is established to develop new affordable housing, rehabilitate housing, and revitalize community infrastructure, the County encourages the Industrial Development

Authority to exercise its authority to assist with tax exempt bond financing, leverage gap financing and stimulate cooperative partnerships toward the preservation and production of housing to address unmet needs.

5. The County will amend the Zoning Ordinance to expand the number of districts where manufactured housing, accessory units, and other alternative housing types are allowed.

General Retirement Housing Policies

1. The County encourages a balance among the different retirement housing types such as active adult, independent living units, congregate living, assisted living facilities and skilled nursing facilities in an effort to meet the continuing needs of retirement age populations and offer seniors a variety of housing choices. Commitment to age restrictions shall be accomplished through the legislative process.
2. To ensure that seniors have access to a range of housing choices, the County encourages the development of a mix of housing types such as single family detached units, single family attached units, multi family units, garden apartments, clustered housing and courtyard units with variations in unit design and lot dimensions within the larger retirement community.
3. The County seeks to integrate retirement housing projects that develop as components of larger master planned mixed-use communities into the larger community. The projects should minimize incompatibilities with surrounding development patterns through integrated design schemes, streetscape design, layout of open spaces and common civic areas, and shared access to amenities and services such as retail centers and recreational facilities within the master planned community.
4. The County promotes the development of affordable housing opportunities within all forms of retirement communities in accordance with the Affordable Dwelling Unit (ADU) provisions of the Loudoun County Zoning Ordinance and the ADU program regulations. The County will amend the ADU program regulations, as necessary, to clarify the exemption of senior citizens from the first-time homebuyer clause outlined in these regulations.
5. In evaluating the appropriateness of proposed retirement communities as infill developments, the County will consider the following criteria:
 - a. The availability and accessibility of established services and amenities in the surrounding area,
 - b. The compatibility of the proposed retirement housing project with surrounding development patterns. Compatibility is measured in terms of proposed density/use intensity, scale and development pattern, and
 - c. The adequacy of the transportation infrastructure, both road networks and pedestrian facilities, to support the proposed development. The County will further consider, as appropriate, the availability of bicycle facilities and transit services such as mini-bus or shuttle services.
6. The County encourages the development of partnerships with educational institutions to promote and facilitate the development of 'Lifelong Learning Centers' targeted to the interests of seniors.
7. The County will amend the Loudoun County Zoning Ordinance to create a new zoning district, Planned Development-Continuing Care Retirement Communities (PD-CCRC), to facilitate the development of continuing care retirement communities, assisted living facilities and skilled nursing facilities.
8. The County will review and amend as necessary the Loudoun County Zoning Ordinance to allow

senior centers and adult day care centers as special exception uses in residential zoning districts and as permitted or special exception uses in the PD-AAAR (Planned Development– Active Adult Age Restricted) zoning district and appropriate non-residential zoning districts that support retirement communities, to ensure that seniors have convenient access to support services proximate to their communities.

9. The County will review and amend as necessary its capital facilities policies and adopted procedures for determining the capital facilities impacts associated with retirement housing projects to reflect the service demands of senior populations.
10. The County will develop incentives to encourage the provision of a certain percentage of residential units designed to meet the changing needs of seniors within all new residential developments. This may be achieved through mechanisms such as the incorporation of the ‘Universal Design Concept’ in design schemes. The County encourages the provision of a variety of housing choices in both existing neighborhoods and proposed developments offering seniors the option of aging in place within their community.
11. A fiscal impact analysis shall accompany all applications for retirement communities to demonstrate the impact of the proposed land use on the long-term economic viability of the County.

Location Policies

Active Adult Retirement Communities

1. Areas planned for Residential land use are the preferred location for the active adult retirement communities in the Suburban Policy Area and the Joint Land Management Areas surrounding the incorporated towns in the County.
2. The County will evaluate proposed applications for active adult retirement communities in areas designated for Business communities and in areas designated for High Density Residential within the Suburban Policy Area based on how well the proposed use meets all of the following evaluation criteria:
 - a. The proposed site immediately adjoins an area planned for Residential uses and the proposed design provides a physical transition or incorporates a natural transition between the residential land use and business use,
 - b. The scale, density and development pattern proposed is compatible with surrounding development patterns, both existing and planned,
 - c. An adequate transportation infrastructure including a road network, pedestrian and bicycle facilities and public and/or private transit opportunities is available to serve senior residents, and
 - d. The site offers the advantages of integration with a larger master-planned residential or mixed-use development such as access and proximity to commercial retail, services and recreational facilities within the larger community.

3. The County will evaluate proposed applications for active adult retirement communities in areas designated for industrial uses within the Suburban Policy Area based on whether the proposed use meets the following evaluation criteria:
 - a. The proposed site is not located within the 65+ Ldn Noise Zone, and
 - b. The proposed site does not border Route 606, and
 - c. Where the proposed site immediately adjoins an area planned for Residential uses, and
 - d. The proposed development is adjacent to and provides access to a larger master-planned (but not age-restricted) residential community larger than 1,700 acres, and
 - e. The scale, density and development pattern proposed is compatible with surrounding development patterns, and
 - f. An adequate transportation infrastructure including a road network, pedestrian and bicycle facilities and public and/or private transit opportunities is available to serve senior residents, and
 - g. The site offers the advantages of integration with a larger master-planned residential or mixed-use development such as access and proximity to commercial retail, services, and recreational facilities within the larger community, and
 - h. The proposed development is separated from adjacent industrially-planned properties by a natural boundary or feature, such as an area of floodplain, and
 - i. The proposed development is not adjacent to land that is designated for Extractive Industry on the Land Use Map.

Continuing Care Retirement Communities Policies

1. The County encourages the development of continuing care retirement communities (CCRCs) which are intended to provide seniors a continuum of care and the option of aging in place through the provision of independent living units, assisted living facilities and skilled nursing facilities as well as an array of services and amenities.
2. Areas planned for Business and Residential uses are considered appropriate locations for continuing care retirement communities in the Suburban Policy Area and Joint Land Management Areas surrounding the incorporated towns in the County subject to the following evaluation criteria:
 - a. Where the proposed site immediately adjoins an area planned for Residential uses, the proposed design shall provide a transition between the CCRC and residential or business land use,
 - b. The scale, density and development pattern proposed is compatible with surrounding development patterns,
 - c. An adequate transportation infrastructure including a road network, pedestrian and/or bicycle facilities and public and/or private transit opportunities are available to serve senior residents, and
 - d. The site offers the advantages of integration with a larger master-planned residential or mixed-use development such as access and proximity to commercial retail, services and recreational facilities within the larger community.
3. In the Transition Policy Area, the County supports the development of retirement housing in the form of active adult and continuing care retirement communities. These developments should generally

follow the design guidelines outlined for villages with densities not to exceed the maximum permissible rezoning densities in the respective Transition Policy Area subarea.

4. The County encourages the location of active adult and continuing care retirement communities near commercial and retail centers within towns, along main streets, near or at town and urban centers and transit stations, and near the commercial cores within larger master planned communities, to ensure senior residents the benefits of safe and convenient access to the amenities and services typically available in such pedestrian oriented, mixed-use environments.

Scale and Density Policy

1. Densities for retirement housing projects in areas planned for Residential land uses, in the Suburban Policy Area, may range up to 8 dwelling units per acre, in areas planned for High Density Residential, Business, and Industrial land uses in the Suburban Policy Area, densities may range up to 30 dwelling units per acre, with densities measured on the gross area of a parcel.

Land Use and Unit Mix Policies

1. Assisted living facilities, skilled nursing facilities and similar senior care facilities that offer a higher degree of care than typically associated with active adult retirement communities shall be viewed as residential uses for the purposes of application of the land use mix ratio.
2. When developed as part of a continuing care retirement community (CCRC), the number of units/beds proposed in assisted living facilities, skilled nursing facilities and similar senior care facilities shall be counted as residential units for the purposes of estimating the CCRC unit mix.
3. The land use mix in retirement housing projects will generally comply with the following ratios:

Land Use Category*	Minimum Required	Maximum Permitted
Residential	30%	60%
Commercial Retail & Service ¹	0%	20%
Civic Space ²	5%	No Maximum
Parks & Open Space ³	35%	No Maximum

¹ Retail Policy guidance provided in *Countywide Retail Plan*

² The definition of Civic Space may include communal facilities such as clubhouses and community centers.

³ Where retirement housing projects develop at densities between 0 and 16 dwelling units per acre, a minimum of 35% of the gross site area shall be developed as Parks and Open Space. Where retirement housing projects develop at densities between 17 and 30 dwelling units per acre, a minimum of 45% of the gross site area shall be developed as Parks and Open Space. The extent to which these Parks and Open Spaces may be public will be determined on a case-by-case basis during the legislative review of an application based on the need of the Suburban Community within which the proposed project is located and creates a public need for such facilities, the extent of the site, the type of retirement community proposed, site design and the public access to the site. Retirement housing projects outside of the Suburban Policy Area will apply the open space policies of the relevant Policy Area.

4. Densities for assisted living facilities, skilled nursing facilities and similar senior care facilities that offer a higher degree of care shall be calculated as a percentage of the total dwelling units of the continuing care retirement community (CCRC). These unit types shall constitute a minimum of 15% of the total dwelling units of the CCRC.

Phasing Policies

1. In Continuing Care Retirement Communities where assisted living and skilled nursing facilities are provided, these facilities shall be phased with the development of the independent living units, such

that residents of the independent living units have access to assisted living and skilled nursing care as the project builds out or must provide an alternate means of providing care.

2. The County supports the development/management entity partnering with local providers of assisted living and skilled nursing facilities to meet the changing needs of residents of independent living retirement housing projects, as the project builds out.

Design Policies

1. The County seeks to foster a sense of community through the layout and design of buildings, open space and community amenities and services within all forms of retirement communities. Variations in unit type, lot size, site layout and architectural design should promote design diversity while ensuring an integrated character for the project as a whole. Smaller lot sizes are generally encouraged to minimize exterior maintenance.
2. A hierarchy in outdoor spaces should be used to serve as focal points within communities and neighborhoods, create outdoor gathering spaces and define the transition between the public and private realms.
3. Retirement communities should be integrated to the extent feasible into the physical fabric of surrounding communities, existing and planned, through site layout, building orientation, architectural design, scale, massing, exterior detail, landscaping and shared open spaces.
4. To avoid the appearance of an institutional use, retirement housing in the form of multi-level structures and similar buildings associated with assisted living facilities and skilled nursing facilities should be designed in a manner that breaks down the mass of building(s). Where this is not possible, facade treatment and exterior detailing should relieve extensive blank surfaces. Landscaping, buffering and layout of common and green spaces may further minimize incompatibilities with surrounding low-density residential and non-residential developments.

Amenities and Services Policies

1. The various forms of retirement communities shall meet the following criteria:
 - a. The development ensures the provision on-site or within a safe and convenient distance the following amenities and services:
 - i. Private clubhouse with meeting rooms and recreational facilities;
 - ii. Retail uses in direct support of the development (i.e. grocery/convenience store, pharmacy, medical services, barber shop, beauty shop, personal care facilities, eating and drinking establishments, bank, business services, laundry, cleaners, and other similar retail uses);
 - iii. Health or fitness center; and
 - iv. Active recreation space
 - b. The development shall ensure that recreational, cultural, and educational facilities (i.e. golf course, religious facilities, medical care facility, and passive recreation space) for the use of residents, employees, and their guests are available on-site or within 10 miles of the site.
 - c. The development shall ensure access to amenities and services through alternate modes of transportation such as pedestrian access, bicycle facilities and public and/or private mass transit facilities such as mini-bus or shuttle services.
 - d. The development is adequately served by public water and wastewater utilities.
2. The County encourages that commercial retail and service uses proposed as part of retirement

communities, but not located internal to the community, be available for public use and designed in a manner that integrates the retirement community with surrounding neighborhoods.

Transportation Policies

1. All new proposals for retirement communities shall demonstrate that safe and convenient pedestrian (sidewalks or trails) and/or bicycle facilities exist or will be in place when senior residents move into the development to connect the proposed development with amenities and services available within reasonable distances in the surrounding area. Where developments are constructed in phases, the County seeks the concurrent development of pedestrian and bicycle facilities within these phases.
2. All new proposals for retirement communities shall integrate transit facilities such as shuttle or mini-bus service and/or work with local and regional transit authorities/providers not limited to Loudoun Transit and the Northern Virginia Regional Transit Authority, to ensure seniors access to local and regional amenities and services.
3. Working in collaboration with the Virginia Department of Transportation, the Metropolitan Council of Governments and agencies such as the American Association of Retired Persons, the County will review and amend as necessary the *Revised Countywide Transportation Plan* to ensure accommodation of the transportation and mobility needs of senior populations.
4. Retirement communities or other uses, public and private, that cater to seniors shall include in their designs covered bus shelters with seating or covered space for seniors to congregate near building entrances or other such locations while they wait to board buses, shuttles and other such mass transit facilities.

In-Home Care and Assistance Policies

1. The County will support private sector efforts aimed at assisting seniors who wish to live in their own homes through the provision of technical assistance, etc. This is intended to facilitate the adequate and timely provision of services such as in-home care and assistance, home rehabilitation and remodeling to address the changing needs of Loudoun's senior population and enable them to age in their own homes.
2. The County will review and revise its regulatory documents as appropriate to offer seniors opportunities that may enable them to age in their own homes such as allowing second kitchens within single-family homes for caregivers.

Infrastructure

The community's infrastructure, including water and sanitation, solid waste management, roads, energy and telecommunications must complement its land use strategy. Loudoun County does not, however, completely control the provision of these vital systems. Water and wastewater are the responsibilities of the Loudoun County Sanitation Authority (LCSA), the Towns or individual property owners. Delivery of solid waste management services is in large part provided by the private sector and regulated by the state. Primary and secondary roads are primarily the Commonwealth's responsibility to build and maintain through the Virginia Department of Transportation (VDOT). Private developers provide for and maintain, through homeowner associations, private roads in their developments and typically proffer additional funding toward improvements of the regional road network. Electric, gas and telecommunication services are provided by the private sector. Nevertheless, the Plan policies provide necessary guidance to these entities to ensure their expansion.

A. Wastewater and Water Treatment

LCSA, created in 1959, is responsible for providing wastewater treatment services to unincorporated, developing areas of the County. The LCSA provides wastewater collection services through a network of interceptor and collection sewers in the eastern part of the County. Sewage from the eastern portion of the County is treated at the Blue Plains advanced Wastewater Treatment Plant in the District of Columbia. In 1999, the LCSA provided service to approximately 33,000 residential and business customers discharging approximately 8 million gallons of sewage per day. The County currently relies on Fairfax City's Goose Creek impoundment facility and the Fairfax County Potomac River intake as the major central water supply.

The LCSA is constructing an additional advanced wastewater treatment (AWT) facility on Broad Run to serve the eastern portion of the County and neighboring jurisdictions. The Dulles Area and Occoquan Watershed policies, which apply to the Goose Creek, Occoquan, and Broad Run watersheds, require advanced wastewater treatment to facilitate high removal rates for phosphorous, nitrogen, and biological oxygen demand. Although the Broad Run AWT will have an ultimate treatment capacity of 40 to 60 million gallons per day (mgd), the initial phase will accommodate approximately 10 mgd. A new trunk line, the Broad Run Interceptor, serves both the Occoquan and Upper Broad Run watersheds of Loudoun County. Sewage flow from the Occoquan Watershed is conveyed to the Broad Run plant through a system of pump stations to protect that drinking water watershed. The Blue Plains Treatment Facility and the Broad Run Treatment Facility will be able to accommodate the Suburban Policy Area's sewage treatment needs within the time frame of this Plan.

Water and wastewater treatment service levels and needs are not the same throughout the County, since proposed land uses, development densities and community character differ from area to area. The County will plan for the development of central sewer and water facilities and allow for the orderly extension of these facilities in the Suburban and Transition Policy Areas. The County will encourage LCSA to serve this area in the most efficient and effective manner possible. In particular, the County will work with LCSA to encourage the extension of central utilities to existing communities within the Suburban Policy Area and promote the use of the best utility system in the Transition Policy Area. (Refer to LCSA Water and Sewer Lines Map, pg. 2-17.) Town central systems will continue to be the major service providers for the Towns' JLMAs.

In the Transition Policy Area and in the Rural Policy Area (including the Landfill Water Service Area District), the County will continue to focus its efforts on protecting public health by maintaining groundwater quality and quantity. Groundwater will continue to be the major source of water for most rural residents and therefore should be protected from the contamination threat of a proliferation of septic tanks and drainfields. As such, on-site, high-level pre-treatment, individual alternative systems and small advanced wastewater treatment systems for clustered development will be the primary methods of sewer service in the Rural Policy Area. The County will seek to establish guidelines and oversight authority to ensure that these facilities function in an environmentally sound manner. Central and communal utility systems are encouraged over individual wells and septic systems in the Transition Policy Area. Surface land application using communal or individual systems will be discouraged in the Transition Policy Area subareas proximate to the Goose Creek and Beaverdam reservoirs. The table below (Wastewater Approach) more simply portrays the wastewater strategy by policy area.

Wastewater Approach

Policy Area	Central Systems	Clustered Communal Systems	Individual Systems
Suburban	X		
Transition			
• Middle Goose	X	X	X
• Lower Sycolin	X	X	X
• Lower Foley	X	X	X
• Upper Foley	X	X	X
• Upper Broad Run	X	X	X
• Lower Bull Run	X	X	X
Rural		X	X
Towns & JLMAs	X		
Existing Villages		X	X

General Water and Wastewater Policies

1. The County will work with the Loudoun County Sanitation Authority (LCSA) and officials of Towns to ensure timely provision of central sewer and water in accord with the land use policies of this Plan.
2. The County will evaluate further development proposals based upon the County's ability to treat, transmit, and distribute a safe and adequate potable water supply in accordance with the land use policies of this Plan.
3. Water and wastewater treatment and conveyance facilities will be planned, designed, and maintained to be compatible with County development and environmental goals while functioning at a high level of efficiency.
4. In planning for future central wastewater and water treatment facilities, the County will use water and sewer design capacity standards established by the LCSA. Where a standard has not been established by the LCSA, the County will use those established by the Virginia Department of Health and the Virginia Department of Environmental Quality and comply with the Clean Water Act and other federal standards. However, within the powers delegated to it by the state, where state standards are considered too lenient or otherwise inappropriate in relation to the County's goals and policies, the County may apply more stringent standards.
5. The County will continue to identify, survey and quantify areas in need of improvements to sewage disposal and water supply systems and will work with communities to identify and implement appropriate solutions such as installing systems, upgrade or replace failing systems, and, where appropriate, design, build and install communal systems.
6. The County, in cooperation with LCSA, will develop long-range plans for wastewater treatment and water supply that establish criteria for siting future wastewater treatment facilities and impoundment sites. The County will pursue this effort according to the sewer and water policies of this plan.
7. LCSA will continue to be responsible for the provision and extensions of public water and sewer service in the Suburban Policy Area and Transition Policy Area. The LCSA may enter into short- or long-term wastewater service agreements with neighboring jurisdictions if mutually agreed to by the County and LCSA.
8. The County will encourage existing residences and communities served by on-site facilities to hook

into public water or sewer facilities when such facilities become available within 300 feet of a residence.

9. The County will require existing communities or residences to hook to a nearby public water or sewer system if on-site water supply or waste treatment capability has deteriorated to a point where there is a public health risk. The County, in conjunction with the LCSA, will seek ways to assist in extending sewer lines into existing communities or residences once development in surrounding areas has brought trunk sewers to the edges of these communities. The County will provide no-interest loans and other incentives to those existing communities or residences required to hook to a nearby public water or sewer system as a result of on-site water supply or waste treatment capability that has deteriorated to a point where there is a public health risk.
10. Communal water and wastewater systems must be financed by the developer or by those who will be directly served by the system. A financing plan will be required. The financing plan must be designed, organized, and operated to be financially self-sustaining to pay all costs incurred by the LCSA for operation and maintenance and to provide appropriate reserves. The County may provide financial assistance (such as loans or grants) to assist in the construction of such a facility for existing rural communities if the system is needed to solve a significant public health threat.
11. Communal water and wastewater treatment system lines that cross land outside a water or sewer service area must be protected by the establishment of permanent easements along the line prohibiting any connection outside the service area.
12. New central wastewater and water lines and facilities should be constructed in a manner that causes the least environmental risk and visual disruption. Disturbed areas (excluding permanent access easements to reach a facility) should be stabilized with native vegetation. New treatment facilities should be screened with trees, berms, and/or shrubs.

General Water Policies

1. The County will support long-term water conservation.
2. The County will continue to rely on Fairfax City's Goose Creek Impoundment and the Fairfax County Potomac River intake as the major central water supply sources. For the Suburban Policy Area and Transition Policy Area, other water-supply options including the existing Potomac River water plants operated by the Town of Leesburg and the Fairfax County Water Authority and the construction of its own water facility on the Potomac may be considered. Potential new sites in the Rural Policy Area would be considered for future storage purposes with water being released through existing streams to replenish impoundment sites downstream and to maintain environmental flows during low water months. Water quality in these areas will be maintained by the use of best management practices and by controlling non-point source pollution.
3. A Commission Permit and other appropriate approvals are required prior to the construction of any communal water system with more than 15 connections and for all rural economy uses and residential clusters using communal systems. The County, prior to approval of the Commission Permit and other required applications, will establish a service area for the communal water system.
4. The County will improve the likelihood of sustainability of groundwater by limiting the installation of additional wells and limiting the number of additional households dependent on wells through water conservation efforts and through the use of communal and/or central water systems where feasible and as approved by LCSA.

5. All communal water systems with more than 15 connections will be owned and operated by the LCSA and will be designed and installed in accordance with applicable State Health Department, LCSA, Virginia Department of Environmental Quality and County standards and regulations.
6. The County will discourage the continued use of individual wells as a source of drinking water in the Suburban Policy Area and Transition Policy Area and will encourage existing landowners to hook into central water facilities as water lines are extended into nearby areas.
7. The Landfill Water Service Area District is established for the area in proximity to the Loudoun County Solid Waste Management Facility and for properties through which the water transmission line passes. (Refer to LCSA Water and Sewer Lines Map, pg. 2-17.) The extension of the central (municipal) water service in this district is permitted to avoid potential potable water problems for properties near the Loudoun County Solid Waste Management Facility. All new development within the Landfill Water Service Area District will be required to obtain service from the central water system. The water lines for the Landfill Water Service Area/District will be sized such that they will only accommodate the maximum density permitted by the Plan (densities up to one dwelling unit per 3 acres).
8. The use of LCSA-approved communal water systems to serve the Rural Policy Area is promoted:
 - a. To serve rural economy uses or rural and residential clusters as defined in this Plan.
 - b. To solve the potable water problems and public health problems of existing residences.
 - c. To serve new or existing institutional uses, including schools, permitted by right or by special exception in the County's rural zoning districts.
9. The extension of central (municipal) water service into the Rural Policy Area is not permitted except to serve County and Town owned and operated public facilities immediately adjacent to a Town or its JLMA. Existing Rural Villages, subject to approval of the majority of village citizens and the LCSA may extend water service to public facilities.

General Wastewater Policies

1. The County will continue to rely on and encourage efficient, economical and effective use of the Potomac Interceptor Sewer, the Broad Run Interceptor, the Russell Branch Interceptor, the Beaverdam Interceptor and the Blue Plains Wastewater Treatment Plant and Broad Run Advanced Wastewater Treatment Plant Facilities to serve the Suburban Policy Area and the Transition Policy Area.
2. A Commission Permit and other necessary approvals will be required prior to the construction of any communal wastewater treatment system. Prior to approval of the Commission Permit and other required applications, the County will establish a service area for the communal wastewater treatment system.
3. The County and LCSA will review and evaluate technological alternatives for individual and communal wastewater systems and identify throughout the County areas in which these alternatives are acceptable.
4. The use of alternative wastewater systems, not specifically addressed in the Commonwealth of Virginia Sewage Handling and Disposal Regulations, may be permitted in the Rural Policy Area and the Transition Policy Area. Such systems will be intended to serve existing residences and communities with failing septic systems and agriculturally compatible institutional and industrial uses. The proposed alternative must be reviewed and approved by the Health Department on a case-by-case basis and must provide a high degree of reliability to ensure a high level of environmental protection.

The County should require liens or bonds or other methods for protecting the public from incurring any costs of correcting a failed private system.

5. The use of LCSA approved communal wastewater collection and treatment systems followed by surface or subsurface soil dispersion is promoted:
 - a. To serve the Existing Rural Villages defined in this plan.
 - b. To serve existing or new rural economy uses or rural and residential clusters as defined in this plan.
 - c. To solve wastewater or public health problems of existing residences; and
 - d. To serve new or existing institutional uses, including schools, permitted by right or by special exception in the County's Rural Policy Area.
6. Communal wastewater treatment facilities serving institutional uses will be sized to serve only the institutional use.
7. The County, in cooperation with the LCSA and the Health Department, will identify viable alternative wastewater treatment methods to septic and drainfield-based systems, including small communal treatment plants and on-site treatment to support clustered residential development. The County will develop and implement standards including those that protect receiving stream quality for the use of such alternatives.
8. Communal wastewater treatment systems using land application (surface or sub-surface) will be preferred to communal wastewater treatment systems which discharge into streams. Wastewater land application systems will be based on soils, geology, topography, environmental impact and proven technology in the field of wastewater treatment and the location and design of these systems will be tailored to the tracts on which they are proposed.
9. The County anticipates that communal wastewater treatment plants may be designed for direct stream discharge and/or land application using the following criteria:
 - a. Communal wastewater discharge systems must be designed to maintain or exceed existing stream water quality and shall be located at least five miles upstream from a public water intake or designated public water supply area. The discharge should be designed to comply with the "Clean Water Act" standards if discharged above a public water intake.
 - b. Communal wastewater treatment plants may not discharge into natural trout streams.
10. The County will encourage LCSA to seek biological nutrient reduction systems for all treatment facilities.
11. The County will allow permanent pump-and-haul operations only to serve existing non-residential uses in the Suburban Policy Area if there is a demonstrated health risk associated with the existing on-site treatment facility and the use is a permitted use as identified by the Zoning Ordinance. Permanent pump-and-haul operations will not be permitted to serve new development or serve as a means of expanding an existing use. The Health Department and the LCSA must approve pump-and-haul operations.
12. Pump-and-haul operations are not permitted in the Rural Policy Area or Existing Rural Villages except as a last resort and temporary wastewater disposal method to address a proven, public health emergency. The County will determine the length of the period during which pump-and-haul disposal will be allowed.

13. The use of combined systems and other alternative sewage disposal systems, under the supervision of a qualified operator, are permitted in the Rural Policy Area and the Transition Policy Area when they are used as a component of a communal wastewater treatment facility that promotes clustered development less than the threshold of typical communal systems. The County will assist in establishing an entity to provide oversight and maintenance services for the operation of new technology, alternative individual and communal wastewater treatment systems.
14. The County (through a partnership among such agencies as LCSA, the Health Department and Housing Services) will pursue funding sources to rehabilitate homes that currently lack adequate indoor plumbing.
15. The extension of central sewer (wastewater) service into the Rural Policy Area is not permitted except to serve County and Town owned and operated public facilities immediately adjacent to a Town or its JLMA. Existing Villages subject to approval of the majority of village residents and the LCSA may extend communal wastewater service to public facilities.

B. Transportation

An efficient transportation system is vital to the livability of a community and to the quality of residents' daily lives. Efficiency is achieved through linking land use and transportation planning, so there is enough road and transit capacity to accommodate growth and so the development occurs in locations that will ensure maximum efficiency of the transportation investment. The County's strategy for addressing transportation needs is described in the *Revised Countywide Transportation Plan* (Revised CTP).

The County maintains close contact with VDOT and seeks its support and cooperation in implementing the Revised CTP. The County sets performance standards for private roads and controls their implementation through the rezoning and site planning process.

The policies in the Revised CTP and *Revised General Plan* clarify the County's land use and transportation strategies for the Suburban Policy Area, the Transition Policy Area, the Towns Policy Area and the Rural Policy Area. Overall, the policies affirm that the County will direct most of its transportation resources in the next twenty years to the Suburban Policy Area and the Towns. Only basic safety improvements to roads in the Rural Policy Area are anticipated and planned road improvements in the Transition Policy Area will be modified to reflect the reduction of development densities. For a complete description of the County's transportation policies, refer to the Revised CTP.

C. Solid Waste Management

The Code of Virginia and the Virginia Solid Waste Management Regulations provide statutory and regulatory authority and responsibility to units of local government for planning solid waste services. Localities are to form solid waste planning districts and adopt and implement solid waste management plans (SWMP) which are to be reviewed and revised as needed and at least every five years. The Loudoun County Solid Waste Management Planning District (LCSWMPD) is comprised of the County and all incorporated Towns except Leesburg, which is its own planning district. Solid-waste management is an essential service for residents and businesses in the County. These services are delivered through a public/private partnership as outlined in the Loudoun County Solid Waste Management Plan (LCSWMP). The LCSWMP was developed in collaboration with the Solid Waste Citizens' Planning Committee in 1994-1995 and adopted by the Board of Supervisors in 1995. It is the plan of record for the most recent submittal to the Virginia Department of Environmental Quality.

The LCSWMP provides a needs assessment of solid waste management service requirements in the district and addresses how the district members intend to meet those needs. It includes substantial text and tables

that describe both the waste generation and waste handling capacity of the public solid waste facilities and of private sector entities that provide solid waste management services in the County. The LCSWMP also includes a capital facilities component. As such, while not entirely in the format of a County service plan, the LCSWMP functions as one.

The Loudoun County Solid Waste Management Facility is the County's solid-waste disposal facility. The County is currently constructing a \$2.3 million expansion to meet capacity demands through 2012. The County owns and operates recycling centers at the landfill and in the communities of Arcola, Hillsboro, Lovettsville, Lucketts, Middleburg, Philomont, and Sterling Park. The Town of Leesburg owns and operates three sites within the town limits. An additional recycling center for western Loudoun is programmed in the current capital improvements planning period.

Solid Waste Management Policies

1. The County Solid Waste Management Plan will identify the type and level of service to be provided in the community.
2. The County will continue to implement an integrated solid waste management strategy that places priority on reduction, reuse, and recycling of solid waste above resource recovery, incineration, and disposal into landfills.
3. The County landfill will continue to exist to ensure that the County always has an acceptable alternative for local disposal of waste should other waste disposal alternatives fail or become ineffective.
4. The County will continue to seek private sector support for the provision of current and future Solid Waste Management Services. To this end, the County will define facilities and location and siting criteria for private facilities consistently in Section 1080 of the Codified Ordinance and the Zoning Ordinance.
5. The County encourages the co-location of government facilities, including recycling centers, where feasible and where they can function effectively.
6. The County will develop a hazardous waste education program and increase residential access to the safe disposal of hazardous waste to protect groundwater resources.

D. Energy and Communication Facilities

Gas, electrical and communication service, all provided by the private sector, are viewed as essential components of daily life. The County supports the timely delivery of these services to businesses and households as development occurs, but seeks to minimize the negative visual impacts through regulations and the Commission Permit process.

The growth of the telecommunications industry led to the County's adoption of the 1996 *Strategic Land Use Plan for Telecommunication Facilities*. These policies provide guidance in terms of priority, location, and performance standards.

The County also continues to experience an increase in new-technology commercial space demands. These new technology companies, such as computer data centers and satellite ground stations, often arrive with disproportionately large physical capital inventories and lower workforce levels per square foot of space. As a result, they have a positive net fiscal impact to the County but have specialized needs in terms of infrastructure, such as additional electrical power and high-speed telecommunication pathways, which may require proactive changes to existing land use requirements. The County should address this emerging issue

and develop policies for capital-intensive technology industries that are flexible enough to meet the needs of the industry but are effective in preventing harmful environmental impacts on the community.

Energy and Communication Policies

1. The County will require the grouping and burying of utility lines and facilities to the extent permitted by law.
2. Areas disturbed by public utility expansions should be replanted and/or reforested and screened from adjacent uses.
3. High-tension power lines, communications towers, and similar facilities should be sufficiently separated from adjacent residential uses to minimize any scientifically recognized potential health and safety risk.
4. Electric generation facilities that use clean burning and environmentally sound and proven fuel sources for power generation can be located only where their impact on the surrounding land uses and the environment is compatible.
5. The County should proactively study and develop policies and implementation schemes that accommodate the changing technological requirements of capital-intensive technology industries, while balancing any potential harmful environmental effects on the community.
6. The County will develop and implement a comprehensive utilities plan to address the impacts and location requirements of energy and communications facilities.

Countywide Health Care Facilities Policies

1. The County's Countywide Health Care Facilities policies are intended to provide a general set of policies that guide the location and type of health care facilities and healthcare-related businesses throughout the County and that provide flexibility to adapt the rapid advances in medical technologies and medical care facilities.
2. The goals of the Countywide Health Care Facilities policies are to promote:
 - Development and provision of high quality health care services within Loudoun County;
 - Appropriate access to health care services for residents of all parts of Loudoun County;
 - Development of a broad range and improved distribution of services in Loudoun County;
 - Efficiency and cost containment for services provided in Loudoun County;
 - Development of sophisticated, high level health care services for health care consumers (including a Tertiary Medical Center within Loudoun County that will permit residents to choose to stay in the County for care);
 - Choice for health care consumers;
 - Development of systems to provide care to all persons, including the uninsured, and to support community health programs;
 - Enhancement of the Loudoun County tax base, employment, growth, and economic development;
 - Availability in the present and foreseeable future of sufficient land in appropriate locations for

- health care facilities and services; and,
- Development of a new hospital in the Dulles South area of the County which is experiencing rapid population growth and which presently has poor access to any hospital.
3. Health care facilities to be developed within the County shall take into consideration State regulations concerning the location of health care facilities and the following criteria:
 - The area, population, topography, highway facilities and availability of the services to be provided by the project in the particular part of the health service area in which the project is proposed, the distinct and unique geographic, socioeconomic, cultural, and transportation characteristics of the area to be served, and barriers to access to care;
 - Compatibility of any proposed large-scale hospital facility with other uses in the vicinity, particularly the impact on existing, stable residential neighborhoods; and,
 - Availability of sufficient acreage to permit the development and future expansion of the proposed health care facility and healthcare-related businesses on the site as well as the potential adverse impact such expansion would have upon existing or planned neighborhoods adjacent to the areas of potential expansion.
 4. The County will encourage the location of a variety of health care facilities in those areas where needs have been identified that may be underserved, for example in the northwest and southern parts of the County and in the Joint Land Management Areas surrounding the Towns. Applications for the location of health care facilities should substantially meet State requirements for approval of the proposed facilities and/or services. The County will establish incentives to facilitate the private development of primary medical care services in locations across the County, with a goal of having such services be available to all County residents within 20 minutes driving time during periods of peak travel demand. In addition, the County will take into consideration the availability of related and/or support services and compatibility of the proposed use with surrounding development patterns.
 5. The County will encourage the co-location of health care facilities and healthcare-related businesses that provide a synergistic environment, improve access and choice of services for County residents, and promote the development of various types of health care facilities.
 6. The County will support a variety of programs and incentives that help create the attributes necessary to support tertiary medical services (See Health Care Facilities Incentive Policies below.). The Tertiary hospital to serve the County should be located where the infrastructure is already in place and surrounding uses are not only compatible but also complementary.
 7. The County may recognize areas around medical centers – present and future – which are appropriate for zoning districts that would allow healthcare-related businesses in those areas and create such zoning districts. The County recognizes that the residents of the Route 50 corridor do not have adequate access to emergency care or hospital related services. The Route 50 corridor should be given special consideration for the next full-service hospital and EMS ambulance receiving facility to be built in the County. The Cornwall Emergency facility, located in Leesburg presently serves as a much-needed receiving facility for EMS ambulances and residents in Western Loudoun. The County encourages the reestablishment of a full service facility at the Cornwall Campus. The County will encourage continued use and development of the Cornwall campus.

8. The County encourages the location of healthcare-related businesses in proximity to established and proposed medical centers. The County will encourage locations of health care services adjacent to the Towns in groupings or clusters that are compatible in scale with the surrounding land uses and that serve the needs of nearby residents.
9. The County encourages the development of primary care services and, where appropriate, freestanding emergency care centers, in County areas where population densities are inadequate to support development of medical centers.
10. The County will support incentives to encourage the private sector to provide services including but not limited to, psychiatric medical care, geriatric medical care and indigent medical care to satisfy the unmet health care needs of these populations. (See Health Care Facilities Incentive Policies below.).
11. The County will continue to provide appropriate medical services and health-related community-based services through the appropriate County Departments.
12. The County recognizes the changing needs of the aging population and supports additional policies that address the development of various types of retirement housing, including but not limited to: independent living, assisted living, skilled nursing facilities and continuing care retirement communities.
13. The existing system by which the Loudoun County Department of Fire and Rescue Services develops its service plan provides efficient and comprehensive planning for the future emergency services needs of the County. The County will continue to rely on this system for determining need and location of future Fire and Rescue Service facilities.
14. The County will encourage development of multiple health care facilities and sites that support regional disaster planning efforts and that can provide medical support in the event of an epidemic or catastrophe. The County will encourage wide dispersal of facilities and avoid concentration of disaster support facilities in proximity to one another.
15. Health care facilities planning should be considered in the County's transportation and land use planning. The Health Care Facilities policies will apply during the time horizon of twenty years as provided in the Revised General Plan.
16. As part of the periodic review of the Comprehensive Plan, the County will review the Countywide Health Care Facilities policies to ensure health care facilities needs are being met.

Countywide Health Care Facilities Incentive Policies

1. In addition to the incentives provided in Chapter 4, Economic Development policies, the County will consider the following to encourage the location of health care facilities in areas that have been identified as underserved such as, but not limited to, health care zones:
 - FAR density bonuses;
 - Creation of special zoning districts that encourage health care zones; and,
 - Expedited review processes.
2. The County encourages development of quality health care facilities, including the provision of tertiary medical services and will:

- Promote partnerships with institutions of higher learning that support higher level health care;
- Encourage the growth and expansion of specialty care services;
- Encourage the development of tertiary level services in those areas where population, densities and characteristics make the availability of such services viable;
- Work with the health care industry to ensure workforce issues are being addressed; and,
- Actively market to health care providers and related businesses those areas that have been identified as underserved or in areas that have been identified as health care zones.